



CNY Stormwater Coalition

Gardens and Gutters

A Central New Yorker's Guide to Managing Stormwater Runoff

Volume 3 Issue 1

Spring 2015

Enjoying the Beauty of the Spring Season

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The spring season is the favorite season for many people, and it is certainly easy to understand why this is so. The spring is when the earth comes back to life after a long cold winter. Flowers begin to bloom and green world begins to return after its winter slumber.

The power of spring and its regenerative effects are evidenced by the fact that most every culture marks spring with a celebration of renewal and new life. It is easy to understand how ancient cultures were overjoyed by the power of spring and why we continue to be today.

The spring is an important season for many hobbies, including of course, gardening. For the gardener, the spring is one of the most pleasant times in the garden. The spring is the time when the bulbs that were carefully planted in the fall begin to grow and blossom. The spring is when the first seedlings are carefully nestled in the garden. There is no doubt that the spring is one of the most beautiful and appreciated seasons for the gardener.

The spring is also a favorite time for home improvement projects. Whether it is a small project like installing new downspouts, or a large project like building a new shed, the spring is one of the best times to work at improving the value and livability of the home.

For the outdoor sports enthusiast, there is nothing like the coming of the spring season. Whether you like to fish, boat or look ahead to the first swim of the season, springtime brings open waters and new opportunities!

Spring also means rain, and while we appreciate the benefits of warm spring showers, we need to remember that excess runoff can

be detrimental to some of our other favorite springtime activities.

Bare soil and uncovered stockpiles of mulch and sand can wash into nearby streams and lakes causing significant impacts on water quality and aquatic habitat. Herbicides, pesticides and fertilizers can do the same. Increasing impervious areas by adding new buildings and paved areas reduces the amount of land surface area where water can soak into the ground.

Fortunately, with a little bit of thoughtful consideration during the planning stages, our natural and built environments can be protected and improved simultaneously. This newsletter will provide you with some simple suggestions and information that you can use today and in the future. So put down that rake, pull up a lawn chair, and take a few minutes to relax and begin planning how you can enjoy your home and garden while protecting our precious water resources this spring and all year long!



Rainwater: Your Liquid Asset

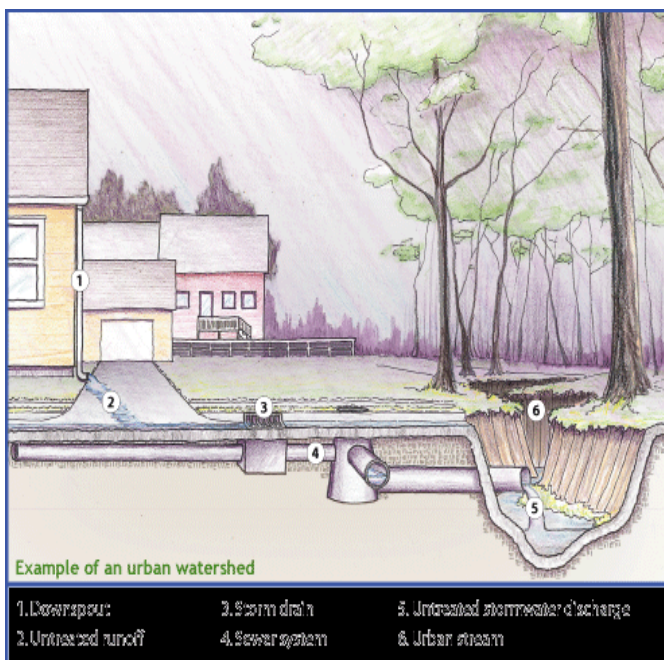
What is stormwater runoff?

Stormwater runoff is rainwater that does not soak into the surface on which it falls, but rather runs along the surface downhill. It is commonly associated with urban areas because of the increase in impervious surfaces (rooftops, driveways, roads), which impedes water from infiltrating (soaking into) the ground. Stormwater picks up and carries pollutants, like sediment, trash, toxins, nutrients and pathogens to our streams and lakes. Excess stormwater also can result in flooding and damage to municipal infrastructure such as roads, greenways, culverts, and sewers.

Where does it come from?

The amount of stormwater produced during a rainfall depends on many factors, including the extent of impervious surface, topography, amount of vegetation and soil type. For example, soils that are primarily composed of clay and become compacted due to human activity are nearly as impenetrable to stormwater as asphalt.

The flow paths of stormwater through communities are influenced primarily by the lay of the land and the ways in which local municipalities and property owners reshape it. Stormwater follows downhill, following the path of least resistance. From your home it may be routed over roads, across neighbors' properties and through ditches to drainage pipes that empty into a creek. As it makes this journey, stormwater connects one property owner to the next and ultimately connects each parcel of land—and the activities on it—to a local waterway.



How should it be managed?

Effective home stormwater management can create a positive ripple effect, providing benefits for you, your neighbors and your community. Best management practices (BMPs) include those that slow the velocity of stormwater flow and allow for its infiltration into the soil as well as those that facilitate its capture and reuse. For the homeowner, there are aesthetic, financial and environmental benefits from applying stormwater BMPs. For example, stormwater can be redirected to attractive rain gardens for added curb appeal or contained in rain barrels, saving dollars and conserving water resources. These practices can also help your neighbor by reducing stormwater flow onto their property, and the community by reducing water pollution and preventing localized flooding.

What should I do?

A home stormwater mapping exercise can help you determine the stormwater BMPs that may be appropriate for your property. First, walk around your yard while it's raining and observe. What happens when a raindrop hits any surface on your property? Does it get intercepted, soak in or run off? What influences where rainwater flows, and how does it impact your yard? It may be necessary to observe several rainfalls of various intensities to effectively assess the stormwater flow paths on your property.

To document your observations, begin by sketching a scaled drawing of your home and its surrounding landscape on a piece of grid paper. Include hard surfaces like driveways and sidewalks to help estimate the total amount of impervious surface area on your property. Draw arrows showing rainfall flow patterns including where runoff enters and exits your property. Include downspouts and topographic features (e.g. mounds, gullies) that influence flow. Identify the locations of bare ground, lawn, trees and other property features that relate to stormwater and its impacts such as where erosion has occurred and where soggy soils persist.

What's next?

Knowing how much water runs off or through your property is critical to selecting and designing any stormwater BMP. In order to calculate this volume you will need to refer back to your scaled property sketch.

In any given storm event the amount of runoff depends on many factors, making precise calculations complicated, but a rough estimate is easily obtained by using runoff coefficients. In this method, runoff is calculated by multiplying the surface area by a coefficient (Table 1) that estimates the conditions of the particular site. This is then multiplied by the depth of the rainfall to obtain a volume of runoff. To make the

Rainwater: Your Liquid Asset continued)

calculation easier, you can assume that rainfall depth comes in units of 1 inch, that way you'll know how much runoff you'll have per inch of rainfall.

HOW MUCH WATER DO YOU SHED? HERE'S THE EQUATION:

Volume Runoff = Surface Area X Runoff Coefficient X Rainfall Depth

Table 1: Runoff Coefficients

Soil Groups A and B are sandier and Soil Groups C and D are more clayey. These soil groups are found in your county soil survey.

Land Use/Cover	Soil Group A	Soil Group B	Soil Group C	Soil Group D
100 % impervious (parking lots, rooftops, paved sidewalks, patios)	0.98	0.98	0.98	0.98
Open Space with grass cover <50%	0.68	0.79	0.86	0.89
Open space with grass cover 50% to 75%	0.49	0.69	0.79	0.84
Open space with grass cover >75%	0.39	0.61	0.74	0.80
Woods in Fair hydrologic condition	0.36	0.60	0.73	0.79
Residential lot (1/4 acre)	0.61	0.75	0.83	0.87
Residential lot (1/2 acre)	0.54	0.70	0.80	0.85
Residential lot (1 acre)	0.51	0.68	0.79	0.84

Here's an example of how it works:

Step 1: Assess Site Conditions In this example we will use a 200ft² patio.

Step 2: Obtain Runoff Coefficient Using the table, look up the runoff coefficient that most closely resembles your site. In this case it is 0.98.

Step 3: Do the Math

Volume Runoff = Surface Area X Runoff Coefficient X Rainfall Depth

Volume Runoff = 200Ft² X 0.98 X 0.083Ft = 16.3ft³ (note: Make sure that "Surface Area" and "Rainfall Depth" are in the same units. It doesn't matter what you use, just stay consistent.)

Step 4: Convert if Necessary Most people have trouble thinking about water volume in cubic feet, so we will convert to gallons multiplying by 7.48 gal/ft³

Volume Runoff = 16.3ft³ X 7.48 gal/ft³ = 121.7 gallons

HELPFUL CONVERSIONS

0.083 FEET = 1 INCH

1 CUBIC FOOT = 7.48 GALLONS

1 CUBIC METER = 264.12 GALLONS

**When good
water goes
bad...**



Slow it Down.

Soak it In.

Keep it clean.

Common Stormwater Pollutants in the Home Landscape

Common Sense Actions to Prevent Pollution

1. SEDIMENT

- Seed, plant or mulch exposed soils
- Do not blow or sweep soil and other materials into storm drains
- Prevent home construction projects from contributing to sediment runoff by using erosion control matting or straw to cover exposed soil. For larger areas of exposed soil, a silt fence may be recommended.

2. PATHOGENS

- Scoop the poop
- Can the grease
- Maintain septic systems

3. TRASH

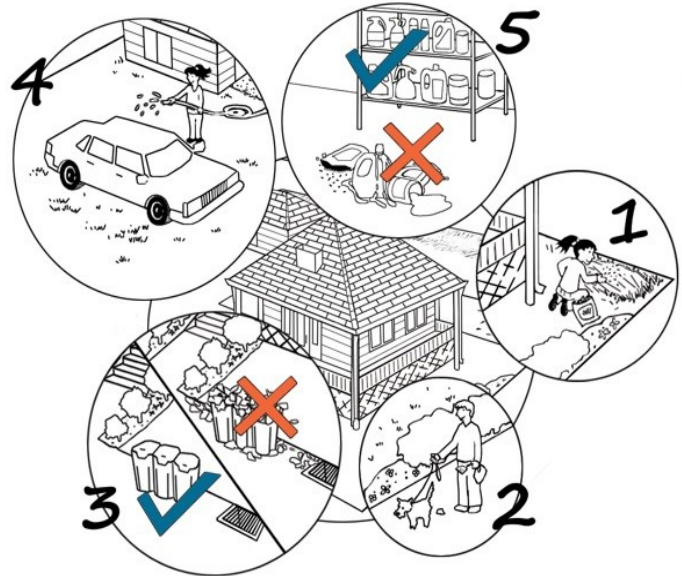
- Tarp your truck
- Secure your garbage cans with animal proof covers

4. NUTRIENTS

- Follow fertilizer application directions and have a soil sample analyzed to determine the correct rate of application
- Sweep up any fertilizer that gets on hard surfaces, like sidewalks
- Don't apply fertilizer to frozen ground or dormant turf
- Don't apply fertilizer when rain is in the forecast
- Do not place grass clippings and other organic waste in stormwater ditches or catch basins. Doing so contributes to flooding and unwanted nutrients in our streams and lakes.
- Wash your car on the lawn or at a car wash

5. TOXINS

- Store hazardous wastes like pesticides in dry and contained areas



- Follow pesticide application directions and try out Nontoxic alternatives
- Learn about integrated pest management strategies to apply in your yard
- Contact your municipal solid waste department to determine the nearest facility to dispose of household toxins such as partially used paints, used motor oil, partially used household cleaners, etc.

THE ROLE OF TREES IN STORMWATER MANAGEMENT

Trees help reduce stormwater runoff and improve water quality by capturing large amounts of rain through their root systems and canopies. A mature street tree can absorb up to 1,000 gallons of stormwater a year.

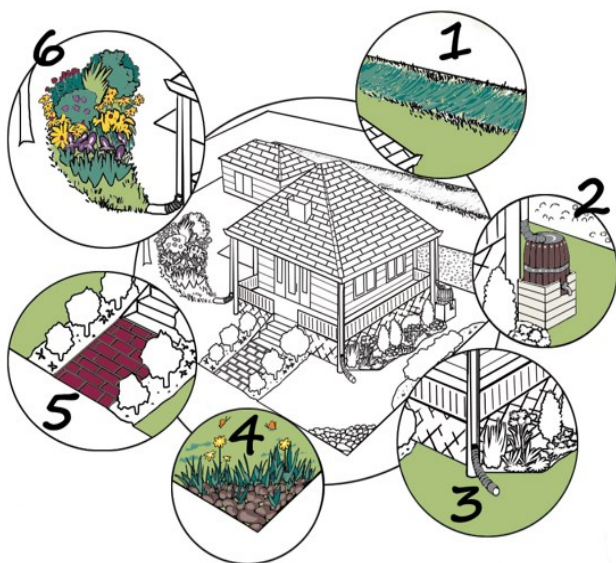
Trees help reduce soil erosion. Soil can be lost to strong winds and runoff, but tree roots bind the soil and keep it in place. Tree canopies intercept rain and slow the velocity of raindrops that do hit the soil.

Trees help to mitigate flooding. Trees evapotranspire large amounts of water from the soil. Mineral soils below trees absorb and retain water which is released over time.

Stormwater Best Management Practices with Landscape Design

NOW THAT YOU KNOW how much stormwater your property is shedding, and how easy it is to better manage it, it's time to consider some BMPs that you can implement at your house.

1. **GRASS SWALES** are gently sloped grassed channels that transport stormwater while also allowing for infiltration. Many homes convey water off their property through concrete lined or eroding ditches. These unsightly features can be replaced with grass swales, an attractive alternative that may increase curb appeal and protect our waterways by filtering out stormwater pollutants.
2. **RAIN BARRELS** are collection systems that allow for rooftop runoff reuse, and reduce the volume of stormwater draining to waterways. Rain barrels come in a many styles and sizes, with selections often based on desired functions and aesthetics. Rain barrels conserve water most effectively when routinely emptied and used.
3. **DOWNSPOUT DISCONNECTION** is a simple way to divert rooftop runoff to a permeable surface, allowing for stormwater infiltration. Many downspouts are connected to a pipe or concrete channel that carries stormwater to a nearby lake or stream. They can be disconnected and rerouted to drain into lawns and gardens. By strategically directing runoff into your yard, and not your neighbors yard, you can save on irrigation costs, reduce stormwater pollution, and be a good neighbor.
4. **ROADSIDE VERGE** is a planted or armored strip that acts as a buffer between a roadway and a residential property that can absorb roadway runoff and provide wildlife habitat. A verge can be used to capture sheet flow runoff or small concentrated flows from curb cuts.
5. **PERMEABLE PAVEMENT** consists of materials and techniques used for parking lots, sidewalks, paths, roads, driveways, decks and patios that allow for water infiltration into the soil beneath. Examples include pervious asphalt, paving stones and cobbles, and other materials that allow stormwater to percolate through areas that traditionally would be impervious to the soil below.
6. **RAIN GARDENS** are shallow, vegetated depressions in the landscape designed to capture and infiltrate polluted stormwater. Rain gardens are typically 3 to 6 inches in depth and are sized to capture and drain a 1-inch rainfall in 24 hours. Rain gardens also slow down runoff, alleviating localized flooding, pollutant transport and stream channel degradation.



What Plants Do I Choose?

Native plants are beautiful and functional. Plants that are native to the region evolved here. They are well suited for local vagaries of Mother Nature. Native plants provide a visual connection between our landscapes and the surrounding field and forest. This gives our community a distinct regional character.

The [Cornell Cooperative Extension of Onondaga County website](#) provides a beautiful full color guide to help you select the most appropriate native plants for your site.



CNY Stormwater Coalition

The CNY Stormwater Coalition was formalized in 2011 in order to establish a regional approach to stormwater management and water resource protection. The Coalition is made up of 28 local governments and the NYS Fairgrounds that operate Municipal Separate Storm Sewer Systems (MS4s). Through the Coalition, members are working together to meet regulatory requirements while improving water quality.

CNY STORMWATER COALITION MEMBERS

Camillus Town	Baldwinsville Village
Cicero Town	Camillus Village
Clay Town	Central Square Village
DeWitt Town	East Syracuse Village
Geddes Town	Fayetteville Village
Hastings Town	Liverpool Village
LaFayette Town	Manlius Village
Lysander Town	Marcellus Village
Manlius Town	Minoa Village
Marcellus Town	North Syracuse Village
Onondaga Town	Phoenix Village
Pompey Town	Solvay Village
Salina Town	Syracuse City
Van Buren Town	Onondaga County
	NYS Fairgrounds

Baltimore Woods Nature Center to Hold its Annual Native Plant Sale and Garden Festival May 30 and May 31, 2015

Celebrate spring at the *Woods at Plantasia 2015!* The plant sale will offer a great selection of native plants, shrubs, perennials, annuals and herbs. Master gardeners from Cornell Cooperative Extension of Onondaga County will be on hand to provide gardening advice. The garden festival includes garden inspired, handcrafted gifts for sale and vendors from the Winter Farmers Market will be on hand with delicious, local products. There will also be a food booth and bake sale to tempt you. Admission and parking are FREE and the festival will be held rain or shine! For more details visit the [Plantasia website](#).

The CNY Stormwater Coalition is staffed and coordinated by the Central New York Regional Planning & Development Board. For more information, visit the CNY Stormwater Website at www.cnyrpd.org/stormwater.



Central New York Regional Planning & Development Board

Think you are a good stormwater steward? Prove it!

Later this summer, the CNY Stormwater Coalition will be conducting a public survey to assess how well Central New Yorkers understand stormwater issues. The results of the survey will help shape the Coalition's 2016 education and outreach program. Please look for an invitation to participate and take a few minutes to answer the multiple choice questions. Your help is much needed and greatly appreciated!

You're invited to attend the next CNY Stormwater Coalition Meeting

The CNY Stormwater Coalition meets quarterly throughout the year. Meetings are held on Tuesday afternoons from 1:00 to 2:00 at various municipal buildings around the region. All meetings are open to the public, and your attendance and participation are always welcomed! The next meeting is scheduled for August 4, 2015 at the DeWitt Town Hall
5400 Butternut Drive
East Syracuse, NY



Live in Syracuse and want to Save the Rain? Get started with a free rain Barrel!

- May 19, 2015 Beauchamp Branch Library — 5:30 PM, 2111 S. Salina Street, Syracuse
- June 7, 2015 Strathmore Art on Porches — 11:30, 1:30 or 3:00, Ruskin Ave, Syracuse
- July 21, 2015-Hazard Branch Library – 5:30 PM, 1620 W. Genesee St., Syracuse
- Sept. 12, 2015 Save the Rain Clean Water Fair- Department of Water Environment Protection, 650 Hiawatha Boulevard W., Syracuse

Contact Amy Samuels at asamuels@oei2.org or 443-1757 for more information.

